

Massachusetts
Department
of
ENVIRONMENTAL
PROTECTION

Summary

Cost Savings:

- \$55,157
- 60%

Project:

Commercial
Renovation of
existing
structure
(32,000 sq. ft.)

Total Waste Reduction:

- 688 tons
reused/
recycled:
asphalt
paving,
concrete,
wood, and
metal
- 173 tons
disposed

Contract:

\$8.5 million
Lump-sum
Public owner

Work Site:

Urban

Completion:

January 2004

c a s e s t u d y

Construction and Demolition Waste Reduction

This case study is one in a series developed by Massachusetts Department of Environmental Protection (DEP) to highlight techniques for saving money and protecting the environment through reuse and recycling of construction and demolition debris.

Project Description: Cambridge City Hall Annex, Cambridge, Massachusetts

Consigli Construction, Inc. was the lead contractor for renovations to Cambridge City Hall Annex. The brick structure is located in a congested urban area. The City chose to have the project adhere to silver certification standards under the Leadership for Energy and Environmental Design (LEED) of the U.S. Green Building Council (USGBC).

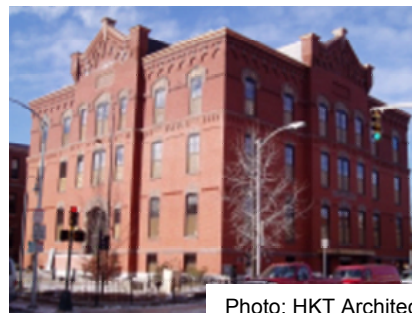


Photo: HKT Architects

Recycling saved \$55,000

Spotlight: Wood Flooring and Asphalt Roofing Materials

Consigli source separated approximately 15 tons of wood subflooring for recycling. A local antique lumber operation, Lingleaf Lumber of Somerville, milled the old growth spruce into finished products such as tongue and groove flooring, stair treads, mouldings and other millwork. Consigli used the remainder of the salvaged wood to make park benches for use on site. The remaining wood was sent to a New Hampshire recycler.

Consigli diverted 1 ton of asphalt roofing materials to Commercial Paving in Scarborough, Maine, which used it in a road construction project in Maine.

Cost Savings

Following is a breakdown of the cost savings due to source separation and recycling:

Material	Tons	Recycling Cost	Avoided Disposal Cost*	Savings
Brick	531	\$22,833	\$71,154	\$48,321
Concrete	29	\$2,407	\$3,886	\$1,479
Wood	112	\$10,640	\$15,008	\$4,368
Metal	15	\$690	\$2,010	\$1,320
Asphalt Roofing	1	\$465	\$134	(-\$331)
TOTALS	688.2	\$37,035	\$92,192	\$55,157

**Cost that would have been paid if material was disposed.*

Disposal costs based on local rates in 2003.

Keys to Success: Leadership for Energy and Environmental Design (LEED)

At press time, Cambridge applied to USGBC for LEED silver certification for the project, which requires earning between 33-38 total project points in a variety of areas, such as energy, resource, and water conservation.

Points. Under LEED's waste reduction credits, Cambridge applied for 2 points for achieving a 75% waste reduction rate.

Focus. The LEED requirements focused the whole team, from owner to architect to contractors, on meeting the standards to attain the silver certification. The team developed and implemented a full-scale waste management plan.

Documentation. LEED also required documentation that ensured recycling and reuse and the destination of the material.

Hauling Logistics. A Consigli subcontractor, the Institutional Recycling Network, helped coordinate hauling logistics and scheduling to meet demands of city noise and parking ordinances.

Project Team

- **Building Owner**
City of Cambridge, 795 Massachusetts Avenue, Cambridge, MA 02139
- **Contractor**
Consigli Construction Inc.
197 Main Street, Milford, MA 01757, Telephone: (508) 473-2580
Contacts: Todd McCabe, Project Manager, and Steven Gentilucci, Superintendent
- **Recycling Services**
Institutional Recycling Network, 7 South State Street, Suite 2, Concord NH, 03301, Telephone: (603) 229-1962
- **Recycling Consultant**
greenGoat, P.O. Box 441911, Somerville, MA 02144, Telephone: (617) 666-5253
Contact: Amy Bauman, President

Additional Resources

- Massachusetts Department of Environmental Protection (DEP) Web site on Construction and Demolition Materials: Reuse and recycling resources for building and demolition contractors includes case studies, model specifications, recycling companies and information on best practices.
<http://www.state.ma.us/dep/recycle/recycle.htm>

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